Malheur National Wildlife Refuge
Burns, Oregon

Narrative Report for Period January 1 to April 30, 1960

Roster of Regular Personnel

John C. Scharff	Refuge Manager
David B. Marshall	Wildlife Management Biologist
Leon A. Littlefield, Jr.	Refuge Manager
Noel L. Cagle	Foreman, Construction & Maint. III
Marselle Leake	Shop Foreman II
Eugene E. Storm	Mechanic, Heavy Duty
LeRoy J. Wilson	Operator, Dragline
Eugene P. Heath, Jr.	Refuge Clerk
Alfred S. Ludi	Building Repairman
Quentin L. Currey	Maintenanceman
Thomas B. Davies	Maintenanceman
Judd A. Wise	Maintenanceman
Ivan J. Carey	Clerk-Typist

Temporary Personnel

Elmer T. Ash	Operator, Dragline
Wendell L. Ash	Laborer
John B. Caviness	Oiler
Hal W. Hibbard	Laborer
William C. Kindall	Oiler
Norbert J. Schekall	Laborer
Jack M. Slates	Operator General (light)
Melvern Slates	Laborer

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Malheur National Wildlife Refuge
First Period Narrative Report
January 1 to April 30, 1960

I. GENERAL

A. Weather Conditions.

Headquarters Station

	Snowfall	Precipitation This Month	Precipitation Normal		Max. Temp.	Min. Temp.
January	18.9	1.45	.91		47	-17
February	3.6	1.24	.78		49	-5
March	3.4	.83	.74		75	6
April	.6	.65	.52		77	16
Totals	26.5	4.17	2.95	Extremes	77	-17

P-Ranch Station

	Snowfall	Precipitation This Month	Precipitation Normal		Max. Temp.	Min. Temp.
January	10.5	1.40	.95		50	-19
February	2.0	1.06	.84		53	-5
March	1.0	1.09	1.11		78	8
April		1.00	.89		80	16
Totals	13.5	4.55	3.79	Extremes	80	-19

Double-O Ranch Station

	Snowfall	Precipitation This Month	Precipitation Normal		Max. Temp.	Min. Temp.
January	12.5	1.04	.90		50	-15
February	5.0	1.14	.62		52	2
March		1.04	.64		74	1
April		.60	.53		78	16
Totals	17.5	3.82	2.69	Extremes	78	-15

Buena Vista Station

	Snowfall	Precipitation This Month	Precipitation Normal		Max. Temp.	Min. Temp.
January	12.0	1.10	.63		—	—
February	3.8	.96	.88		—	—
March	1.0	.87	.62		—	—
April	T	.66	.43		—	—
Totals	16.8	3.59	2.56	Extremes	—	—

Normal precipitation is based on a twenty-three-year average at the Refuge Headquarters Station, a sixteen-year average at the P-Ranch Station, an eleven-year average at the Double-O Station, and a

three-year average at the Buena Vista Station.

Locally, precipitationwise, moisture this period was well above average. The Refuge Headquarters Station recorded 144% of normal; the P-Ranch Station, 120% of normal; the Double-O Station, 142% of normal; and the Buena Vista Station, 140%. However, temperatures remained below average and, especially during the growing part of the period, coupled with considerable northerly winds which precluded average growing conditions. At the refuge headquarters, nineteen nights during April resulted in ice; and on April 23, the minimum of sixteen was reached.

B. Habitat Conditions.

1. Water. In order that more time would be available for stream water users to plan the season's water distribution and use, it was decided by the snow survey and water supply forecasters for the state of Oregon that the annual forecast would be attempted in early March instead of near April 1 as heretofore. On March 8, the annual meeting was held in Burns which was attended by Refuge Manager Scharff. At this time, surveys had been made on some courses and depth measurements taken from the air on others on which estimates were based. On the basis of all available data as of March 1, it was estimated that the Blitzen River would flow 75% of the 1943-57 average flow of 67,000 acre feet during the water season, or approximately 50,000 acre feet; the Silvies River would flow an estimated 50,000 acre feet, or 47% of of the 1943-57 average; and Silver Creek would be fair. It would appear from the March 1 forecast that the Blitzen River would run a sufficient amount of water to supply the Blitzen Valley requirements plus a fair amount for Malheur Lake. Most of Harney Valley should get wet but with perhaps very little if any reaching Malheur Lake from that source. Silver Creek should flow a sufficient amount of water to irrigate the entire Silver Creek and Warm Springs valleys and fill the shallow pond areas of the Double-O.

The annual snow measurements made on March 25 revealed a 34.8 inch snow cover at the 7,000 foot elevation with a water content of 13.9 inches as compared with a twenty-one-year average of 37.5 inches of snow and 13.8 inches of water; and a 51.1 inch snow cover at the 8,000 elevation with 18.1 inches of water as compared with a 71.3 inches of snow and 25.1 inches of water average of a twenty-year record.

While both the snow and water content at the lower elevation appeared normal, there were three reasons why a satisfactory runoff from Steens Mountain cannot be expected without the most favorable kind of weather and moisture conditions during the spring which are first, a drastic shortage in the snow pack at the 8,000 foot elevation, the absence of drifts, and the dry condition of the ground under the snow.

Indications by the end of the period are that all streams will fall short of the March 1 predicted flows.

2. Food and Cover. Poor waterfowl food conditions continue to prevail at the Malheur Refuge. Although conditions were improved over last year at the Double-O and in the Blitzen Valley, the reverse was true for Malheur Lake. Rising water levels in Malheur Lake provided some additional waterfowl food, but in general this was over rather unproductive areas. Portions of the Blitzen Valley and Double-O which did receive water received a corresponding response in waterfowl use.

Food conditions were also poor for shorebirds because of the absence of any recently inundated mud flats. Fish-eating birds arrived rather late. It is not yet known how suitable conditions will be for them this year.

Good conditions for big and upland game were rather poor this winter due to the poor growth of last year. However, towards the end of the period, conditions had greatly improved from periodic showers which started considerable green growth.

A major pond to serve as a brood area and for other waterfowl purposes is badly needed in the Blitzen Valley to replace Boca Lake which is dry and to be farmed as a part of a pond rotation and improvement program. We had hoped the new impoundment in the West Swamp would serve this purpose. It was flooded at the end of the period. It was found that with the present outlet structure, water in this impoundment cannot be held at a sufficiently high level to prevent this area from becoming one big "tule" marsh almost immediately.

II. WILDLIFE

A. Migratory Birds.

1. Waterfowl. Waterfowl use of the area for this period continued to decline. Both duck and goose use was the lowest seen for the January-April period in a number of years. Swan use was the lowest seen for the period since 1956. These declines can be attributed to both food and weather conditions.

Compared to the past couple of winters, this one was both long and cold. This cut down on the number of birds which remained on the area for the winter and resulted in the spring migration getting a late start. The first migrants appeared about February 22 compared to February 3 for 1959. Pintails, snow geese, and white-fronted geese were the first to arrive. These early arrivals were caught in rather severe weather from February 28 to March 2, which caused them to move to the Blitzen River below the Sod House Spring and other spring-fed waters which afforded ice-free water. On March

9, the spring migration was in full swing. The peak of the migration came in mid-March, which was rather early. Sudden warm weather appeared to send the migrants northward rather soon. Thus, it can be said the migration came late and left early. This condition in part accounted for the decline in waterfowl use days this period over past years. As is usually the case, pintails and snow geese were the most conspicuous forms during the early and main part of the migration. The end of the migration saw the appearance of shovelers as the dominant form, some of which were still on the area at the end of the period.

Early water, where present in the Blitzen Valley, saw fair use by spring migrants; but, in general, Malheur Lake saw most of the use by these birds. Fair numbers of pintails appeared on Harney Valley meadows off the refuge in mid-March.

The outlook for nesting waterfowl appears considerably improved over last year.

a. Whistling Swan. As has been the case the past several winters, a few whistling swan remained on the refuge through the winter. Numbers of whistling swans present during the spring migration were estimated at 3,600 on March 10 compared to a peak of 11,000 at about the same time last year. Nearly all these birds were present on newly-flooded portions of Malheur Lake east of Cole Island.

b. Trumpeter Swan. A minimum of 21 trumpeter swans wintered on the area. At the end of the period, there were likely more trumpeters on the basis of aerial observations which fail to positively separate trumpeter swans from whistling swans. Our report for a year ago mentioned the possibility of some of our trumpeter swans spending the winter elsewhere. During the spring, it is impossible to locate every trumpeter pair on the refuge for a complete count, but the numbers of these birds seen make one wonder if there were not 25 or 30 of these birds present by April rather than the 21 accounted for at the Sod House Spring in January. April 21 saw the finding of the first trumpeter swan nest seen on this area. It is located about 500 feet from Highway 205 north of Buena Vista in Unit 8.

c. Canada Goose. Numbers of these birds at Malheur continue to show a decline. Low water levels combined with an absence of muskrat houses on Malheur Lake make one believe nesting success for this species again will be rather poor this year. The artificial nesting islands in the Dredger Pond received fair use this period with at least 9 nests being counted on them. No goose broods were seen until April 30.

d. Snow Goose. The spring migration of snow geese was not nearly as spectacular as seen in recent past springs. These

birds arrived late and left early and were in smaller than usual numbers. An absence of moisture during the period of their stay in the refuge headquarters area caused unusually dry grazing conditions for them. Besides the aforementioned area, flocks of snow geese appeared at the Double-O and on the north side of Malheur Lake. Several hundred used the Buena Vista area to some degree. Snow goose numbers on the refuge probably did not exceed 20,000 while Harney Valley off the refuge harbored 80,000 more.

e. Other Geese. White-fronted geese appeared in above average numbers on the refuge. Besides Malheur Lake, they were frequently seen in the Buena Vista area, in Diamond Swamp, and on Knox Pond. Although peak numbers of white-fronts probably did not exceed 500, we were happy to see this species which normally appears on the refuge in much smaller numbers. Most of the white-fronts which normally come through this area are seen in Harney Valley.

Two adult blue geese were seen in a flock of snow geese in the rye field near Sod House Dam on March 14. This constituted the first refuge record for this bird. Although Ross' geese were observed in Harney Valley this period, none were seen on the refuge.

f. Ducks. Duck species which showed a decided increase in use over a year ago included the lesser scaup and ruddy duck, both of which used Harney Lake as their main area of use. Species which showed a decided decline over a year ago included the green-winged teal, American widgeon, and shoveler. Use by other species approximated that of a year ago. The spring migration peak was about the same as the low of last year, but as mentioned previously total duck use days showed another decided drop.

As brought out in Table 1, the main areas of use continue to be Harney Lake and Malheur Lake, which combined accounted for 72% of the duck use found on the refuge this period. Aside from the scaup and ruddy ducks mentioned above, areas of use by the various duck species approximated that listed for ducks as a whole, there being no one main concentration point for any other particular species.

Table 1. Relative duck use of various sections of Malheur Refuge during the period. Based on percentages derived from use days.

Double-O	9%	
Harney Lake	21%	
West side Malheur Lake	2%)	Total
Center Malheur Lake	31%)—	Malheur Lake
East side Malheur Lake	18%)	51%
Blitzen Valley	19%	

g. American Coot. The bulrush zone in the center north section of Malheur Lake accounted for most of the coot use seen, although numbers of coots reached several thousand at times at the Double-O. Coot use was believed to have been slightly below that of a year ago. As is often the case at Malheur, numbers of coots nearly reached those of ducks.

2. Other Waterbirds. Use by other waterbirds appeared to be about normal although most summer residents of this group arrived late or had not yet appeared at the end of the period. Sandhill crane numbers appear to be somewhat up from the past several years. The first sandhill crane of the season was seen by Refuge Manager Scharff in the Blitzen Valley on February 24. By the end of the period, the nesting of great blue herons and double-crested cormorants was well underway. Thousands of eared grebes appeared at the end of April on Harney Lake. For the third year in a row, horned grebes were seen in the Blitzen Valley in breeding plumage. They nested there for the first time in 1958. It again appears as though Harney Lake will see a colony of white pelicans.

3. Shorebirds. The vast expanses of mud flats seen on Malheur Lake a year ago were absent this year and the variety of shorebirds to be seen was correspondingly down. However, several thousand avocets put in their appearance there and at Stinking Lake at the Double-O in mid-April. Black-necked stilts appeared at the end of the period. Willet numbers are down somewhat. One or more major gull and Caspian tern colonies can be expected to occur at Harney Lake according to gatherings of these species at the end of the period.

4. Doves. Sizeable numbers of mourning doves are in evidence.

B. Upland Game Birds. As was reported in previous narratives, numbers of ring-necked pheasants and California quail show a decline from the highs of a year ago. Quail trapping was neither advisable nor would it have been profitable this winter. No winter losses were noted among these birds although such could have occurred to a limited extent. Numbers of chukars and gray partridge are also below the levels found a year ago.

C. Big Game Animals. Where 30 or 40 antelope could be seen a year ago in the lower part of the Blitzen Valley, there are probably not more than 15 this year. Mule deer were generally off the refuge this period. No unusual findings of dead big game animals were reported this winter.

D. Fur Animals, Predators, Rodents, and other Mammals. As has been previously reported, muskrats are at a low ebb on Malheur Lake. No muskrat trapping took place. The heavy populations of coyotes were greatly reduced this period. Forty poison stations were placed either on the refuge or in its immediate vicinity. At the end of the period, they were being gathered up and had been about 70 to 75% eaten. An unknown number of coyotes were killed by these stations. Others probably died of starvation and/or disease, since many in very poor condition were

noted at the beginning of the winter. Beavers were not a major problem this winter since their numbers have not come back to any appreciable extent. Bobcats, although present in numbers, were not as abundant as some period the past several years.

E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies. Golden eagle nest sites have not been fully checked this spring as yet, but it is evident their numbers continue to be low. Fair numbers of bald eagles put in their appearance this winter and early spring on Malheur Lake. Twenty or more were seen on occasion during aerial census work. These birds appear in the vicinity of main waterfowl concentrations and apparently pick up cripples. Numbers of rough-legged hawks were at a very low level this winter. However, sparrow hawks have increased decidedly and are again present in fair numbers in the Blitzen Valley where two years ago few were to be seen. Numbers of pairs of Swainson's hawks have probably increased by about two pairs over last year. No horned owl nests have been seen this period. Usually about six are located. These birds suffered from lack of food during the winter and were frequently seen in daylight in a rather weak condition.

F. Other Birds. A male white-throated sparrow, first seen by Mrs. J. C. Scharff, put in its appearance around the Scharff residence on April 25. This is the second refuge record for this species. Arrival dates for summer birds are now being recorded on a master sheet which is kept in the refuge files.

G. Fish. A spawning run of rainbow trout in Krumbo Creek from Krumbo Reservoir was reported to us on April 23. It was subsequently investigated and will be reported on by Fisheries Management personnel. Although no major run from Krumbo Reservoir fish was expected until the spring of 1961, a thousand or more of these fish were counted in the creek at the end of the period. Spawrming was much in evidence. Although we at first felt concern over this run because some of the fish had died or were sick, Fisheries personnel explained to us that this is to be expected.

No fish plantings were made on the refuge this period.

I. Disease. None noted.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

1. Carpenter Department. During this period, several major projects were accomplished over and above the usual heavy maintenance work of the season. The office and office bunk room were painted by Norbert J. Schekall who filled the caretaker position during this period. The Buena Vista Barn was completed and the Frenchglen Hotel second story bathrooms improvement made which allows for two complete bathroom units on that floor. Two large water troughs

of over 600 gallon capacity each were provided for the Swan Lake flowing well to water cattle in three different pastures.

Over and above normal maintenance of buildings and facilities, a kitchen vent and fan was installed in the Frenchglen Hotel. Storm windows were provided for Quarters No. 19 and a number of other permanent improvements were made.

The barn development at Buena Vista consists of a neat open-shed type building with space for saddle horses, milk cow, saddle room with grain storage, and hay storage above. The building is wired for lights and has a metal water trough protected by the roof. Pole corrals serve the barn.

2. Restoration of Dikes, Bridges, etc. During this period, much was accomplished under this maintenance project. One hundred twelve miles of road was bladed. Upwards of twelve miles of laterals were cleaned. Willows were cleaned from canal banks and a number of openings provided through willow growths along roads below the P-Ranch so that improved observations could be enjoyed by recreationists traveling the Center Patrol Road. The Boca Lake drain was cleaned out by the use of powder. One 36" pipe was installed to enhance the drainage of the North Diamond Swamp. A number of beaver holes were repaired in the Blitzen Valley, several of which required several yards of dirt to repair. The old Tipton Headgate was repaired and changed over to a splashboard type. Several acres of dead and dying willows in the Dry Field were bunched by aid of a bulldozer for future burning when conditions become right. Many water checks were repaired, and especially in the Jones Field. Fall levee work was smoothed in the West Swamp and Dredger Field areas.

One cattle guard was completely rebuilt from the pit up. Breaks in the Jim Green Levee were repaired. Almost 100 cubic yards of gravel were hauled for road repair about the P-Ranch and Brenton Cabin. Several islands were constructed in the Rutherford Lake area. One new board gate was installed with the cattle guard replacement mentioned above. Two twenty-four inch pipes with headgates were installed in Knox Field to improve the water distribution in a summer grazing area and furnish water for the grain being grown in that field if required.

3. Equipment Maintenance and Repair. In addition to normal repair of equipment in the shop and field and at the various stations, quite a number of major jobs were accomplished during the period.

A 550 gallon fuel tank was installed for use of the shop furnace.

Cattle guard ends were prefabricated of angle iron and installed at the headquarters entrance cattle guard.

Five-thousand-mile inspections were made on nine pieces of

automotive equipment.

A trailer with 8'x20' bed was completed for use in hauling farming equipment.

The swing drums and shaft were removed and repaired with a number of new parts on the American dragline.

The motor was removed from the 22 Cat and the throwout bearing, flange assembly, and pilot bearing were replaced.

An iron rack was made and set up at the east end of the shop.

The refuge horse trailer was rebuilt in part and thoroughly reinforced.

4. Other Marsh Development. This work was hampered somewhat by the breakdown of the American dragline and the long delay in securing parts. The steel strike eventually was felt in field work, particularly in securing machinery parts.

During the period, some minor jobs were done on West Swamp and Krumbo Reservoir consisting mostly of flashboard cutting and installing, extending gravel boat landing, and moving toilets to new locations above the high water mark. Almost 7,500 lineal feet of the Diamond Drain Canal were constructed. During the first two months of the period, above-average frost penetration in the ground plagued the progress of this project; and, then, by April 1, the seepage water called mats into use, which naturally slowed down the wheels of progress.

Considerable assistance was rendered the Branch of Engineering in the field work done in Diamond Swamp.

B. Plantings.

4. Cultivated Crops. The refuge planting during the period consisted of 62 acres of spring rye and 30 acres of grass and clover. Some planting was accomplished by share crop permittees; but owing to the cold, adverse weather, planting generally will be late.

The desert wheatgrass seeded during the fall period looks encouraging and with timely rains and some warm weather should develop into a good stand.

C. Collections and Receipts.

1. Seed or other Propagules. None.

2. Specimens. None.

D. Control of Vegetation. No control work was done this period.

E. Planned Burning. Prior to flooding, the West Swamp was burned to remove old marsh growth. It is hoped through this burning that improved soil and water conditions for waterfowl food plants might be brought about, as otherwise the waters of this new impoundment would have been fouled with decaying vegetation. It was hoped this benefit would offset the fact that the burning will bring about the growth of a more luxuriant stand of coarse emergents than would otherwise occur in certain sections of the impoundment.

IV. RESOURCE MANAGEMENT

A. Grazing. Generally, reduced carrying capacities were reflected over the entire refuge with the exception of some tracts within the Malheur Lake Unit. The rodent damage of 1958, followed by the water shortage of 1959, contributed to the lowered carrying capacities. Favorable precipitation early in the fall of 1959 added considerably to the palatability of much of the semi-marsh vegetation as well as brightening up the aftermath, which offset to some extent the dry spring and summer conditions reflected in plant growth.

C. Fur Harvest. Owing to the scarcity of fur bearing animals on the refuge, no removal program was initiated during the 1959-60 season.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Progress Report.

1. Harney Valley Waterfowl Investigations. As has been customary, checks were made of waterfowl numbers in Harney Valley when the opportunity presented itself. A flight made March 10 revealed the presence of 1,500 whistling swan, 1,000 Canada geese, 800 white-fronted geese, 14,000 snow geese, 5,000 mallards, and 22,000 pintails in the main sections of this valley. A second flight made on March 25 showed 150 whistling swan, 500 Canada geese, 300 white-fronted geese, 80,000 snow geese, 500 mallards, 20,000 pintails, 400 green-winged teal, 2,000 American widgeon, and 1,100 shovelers. These are minimum figures. Only the principal areas in the valley were covered. Actual population numbers were probably at least 20% higher with other species being represented in smaller numbers. These flights also probably missed the peak of the migration.

VI. PUBLIC RELATIONS

A. Recreational Uses. Recreational use of the refuge got off to a late start during this period owing to adverse weather conditions, and the number of visitors were somewhat short of a year ago. Visiting numbers picked up considerably by the end of the period, and indications are that the recreational use of the refuge will be greater than ever

before.

B. Refuge Visitors.

January

2 Mr. Russell Pengelly, Burns High School Teacher, Burns, Ore.
Mrs. Elaine Robe, Ornithology Student, Burns, Oregon.
Mrs. Azalea Graves, Ornithology Student, Burns, Oregon.
4 Donald Z. Robins, District Manager BLM, Burns, Oregon.
6 Jack Compton, Cadastral Surveyer, Branch of Engineering, Portland, Oregon.
12-15 A. Vernon Ekedahl, Regional Office, Portland, Oregon.
13 John Hauck, Oregon State Police Game Officer, Burns, Ore.
Bernie Freeman, Oregon State Police Game Officer, Burns, Ore.
19 Robert E. Cole, Manager Harney Electric Coop., Burns, Oregon.
Willard C. Johnson, Bonneville Power Admin., Portland, Ore.

February

5 Ray Glahn, Pilot-Biologist, Portland, Oregon.
10 Fred A. Sankey, Mammal Control Supervisor, Baker, Oregon.
Russell Zink, Mammal Control Agent, Crane, Oregon.

March

19 Robt. Feicher, River Basins, Boise, Idaho.
23 Evelyn Wood, Photographer, New Westminster, British Columbia.
25 Ray Glah, Pilot-Biologist, Portland, Oregon.
26 Robt. Dougall, Water Rights Engineer, Portland, Oregon.

April

4 Ray Glahn, Pilot-Biologist, Portland, Oregon.
4-6 Lee Kuhn, Oregon State College, Corvallis, Oregon.
6 Russell Zink, Mammal Control Agent, Crane, Oregon.
4-7 Richard E. Pfiefer, Photographer, Portland, Oregon.
11 Carl V. Ferminich, Central Office, Washington, D.C.
David M. Hickok, Central Office, Washington, D.C.
A. Vernon Ekedahl, Regional Office, Portland, Oregon.
21 Keith McDonald, Civil Engineer, Fayetteville, N.Y.
25-26 Joseph P. Mazzoni, Tule Lake Refuge, Tulelake, Calif.
26 Ray Glahn, Pilot-Biologist, Portland, Oregon.
Mark Morton, Fisheries Biologist, Portland, Oregon.

C. Refuge Participation. On January 2, Refuge Clerk Heath participated in the annual Audubon Christmas Bird Count conducted on the Malheur Refuge.

Jack Compton, Cadastral Surveyor, Office of Engineering, Portland, spent from January 6 to January 25 completing the Diamond Drain survey and establishing new corners on the refuge boundary as a result of the

more recent public land order. Owing to field snow depths, it was necessary to curtail the amount of work required at that time as present corners were very difficult to locate in 8-10 inches of snow and unbroken roads and trails were difficult to travel and open.

On January 6, a range adjudication of the Diamond-Moon Hill Unit of the Frenchglen Precinct was attended at the BLM District Office in Burns. The range involved adjoins the refuge boundary on the east side of the Blitzen Valley and most of the cattle involved graze on the refuge during the fall and early winter. Substantial reductions were required to bring the Class I demand and big game use into line with the available feed.

Assistant Regional Refuge Supervisor Ekedahl and Regional Refuge Biologist Beed spent January 12-15 on the annual O&M refuge inspection. This proved to be a most inopportune time to make this inspection as the refuge was covered with a blanket of snow which precluded traveling over much of the area and observing field conditions.

On January 14, Refuge Manager Scharff attended a BLM meeting called in Burns by State Supervisor Russell Getty to discuss proposed access roads into isolated areas such as Steen's Mountain and Crane Creek Mt. This meeting was well attended by representatives of various agencies and individuals from over the state and was well covered.

Refuge Biologist David Marshall presided over the monthly meeting of the Harney County Chapter of the Izaak Walton League, of which he is president, on January 20 and showed the picture Wings Over Blitzen Valley. Thirty people were present to see this picture.

The State Advisory Board of the Bureau of Land Management met in Burns, Oregon, on January 27. This meeting was attended by Refuge Manager Scharff who is the wildlife representative of this Board. Other members of the Board consist of a cattle and sheep representative from each of the five local boards. Among other business, resolutions were prepared for the state representatives to present to the National Advisory Board Council which will meet at a later date in Washington, D.C.

During the week of February 1 through February 5, the National Meeting of the American Society of Range Management being held in Portland, Oregon, was attended by Refuge Manager Scharff. Some time was spent in the Regional Office discussing various administrative matters.

The Regional Conference in Portland during the week of February 15-19 was attended by Refuge Manager Scharff, Assistant Refuge Manager Littlefield, and Wildlife Management Biologist Marshall.

On March 11, a slide lecture on activities of the Malheur Refuge was given by Refuge Manager Scharff at the regular monthly meeting of the Grant County Sportsmen's Club in John Day, Oregon. There were almost fifty members and friends in attendance and the entire meeting

reflected detailed planning and a snappy presentation which made it most enjoyable to all concerned.

The annual water forecast meeting held in Burns on March 8 was attended by Refuge Manager Scharff.

The Pfeifer film, Wings Over Blitzen Valley, was shown to the clubs, schools, and organizations as indicated during this report period:

Burns Library Club
Harney County Chapter, Izaak Walton League
Griffin Home
Burns P.T.A.
Burns Kiwanis Club
Burns Schools
Grant County Sportsmen's Club
American Legion Auxiliary
Silver Creek P.T.A.
Bald Butte Rod and Gun Club
Frenchglen Community

A total of 869 persons saw this picture during the above showings and it was well received by everyone.

On March 8, a meeting of the Harney County Livestock Association was called to discuss, primarily, the reductions being made in livestock use on the public range by the Bureau of Land Management. This meeting was attended by Refuge Manager Scharff.

On March 25, Noel Cagle made the annual snow survey trip to the Silvies and Fish Creek snow measuring courses on Steen Mountain. Snow conditions disclose only fair water prospects from the Steen Mountain watershed for 1960.

At the request of Roger Tory Peterson, the range, habitat, and nest sections from a manuscript for a new edition of A Field Guide to Western Birds was reviewed by Biologist Marshall who made suggested changes and additions as particularly applied to the state of Oregon.

Monthly meetings of the Harney County Chapter of the Izaak Walton League were attended by Biologist Marshall.

Biologist Marshall presented illustrated talks to student groups at Oregon State College on February 10, 11, and 12 on refuge and waterfowl management. He also appeared before student groups regarding employment matters.

The annual Oregon meeting of the Pacific Northwest Bird and Mammal Society was attended by Biologist Marshall on February 13 in Portland.

A banquet celebrating the 25th anniversary of the Fish and Game Department at Oregon State College was attended by Biologist Marshall

in Corvallis, Oregon, on February 18.

Four high school biology classes totaling 90 students were given illustrated talks on bird management by Biologist Marshall on March 15 at the Burns High School.

Contestants and judges for the Odd Fellows Lodge sponsored United Nations speech contest were shown about the refuge by Biologist Marshall. The contestants, who are high school students, were judged on the basis of a speech drawn from observations made on the refuge trip.

A Pacific Northwest Conference on Wilderness held March 26 and 27 was attended by Biologist Marshall in Portland while on annual leave status.

Refuge Manager Scharff and Biologist Marshall helped judge Harney County Schools Science Fair on March 30 in Burns.

Wives of Kiwanis Club members attending a regional conference in Burns were shown wildlife slides of the Malheur Refuge by Biologist Marshall on April 3.

About 60 students at Eastern Oregon College at La Grande were given a slide-illustrated talk on the Malheur Refuge by Biologist Marshall on April 5.

A male sage grouse was collected in Catlow Valley on April 19 for the Harvard College museum.

Twenty students from the Northwest Nazarine College taking an ornithology course headed by Prof. Mickey Dean were conducted over the refuge on April 30.

During the afternoons of April 5 and 6, Refuge Manager Scharff accompanied a group of 24 game management students from Oregon State College over parts of the refuge explaining the operation, plans of development and other administrative matters.

On April 26, Fisheries Biologist Mark Morton flew to the refuge and examined the trout condition in Krumbo Creek, pronouncing everything to be in good order.

VII. OTHER ITEMS

A. Items of Interest. Assistant Refuge Manager Leon A. Littlefield, Jr., was selected to attend the Regional training school which was conducted from the Regional Office during the period of January 11 through April 8. He remained on detail to the Regional Refuge Office until April 29, returning to his official station on April 30.

Manager Robert E. Cole, of the Harney Electric Co-op., and Willard Johnson, of Bonneville Power Administration, visited the refuge on January 19 seeking photographs of refuge wildlife for an exhibit featuring the Harney County electrical cooperative in St. Louis, Missouri, during February. A number of negatives were furnished Mr. Willard for his use in this project.

Refuge Manager Scharff served on the nomination committee on April 16 for the election of two directors for the Harney Electric Co-op.

Joe Mazzoni, of Tule Lake Refuge, hauled a load of grain to Malheur Refuge and spent a day with Refuge Maintenanceman Wise going over the water manipulation on that area to become acquainted with its management as he will be transferred to that station upon the mandatory retirement of Judd A. Wise on May 31.

On April 28-29, Refuge Biologist Marshall made a trip to Klamath Falls and brought back the air-thrust boat which had been taken there at an earlier date for a thorough overhaul job.

Refuge Clerk Heath attended several meetings held in various sections of the Crane High School District which were called primarily to discuss school district reorganization in Harney County.

A bit of historical interest:

> The name "Malheur" was first used by the famous Hudson's Bay Company trader Peter Skene Ogden on Tuesday, February 14, 1826, when the following entry was made in his diary: "We encamped on River au Malheur (the unfortunate river) so called on account of goods and furs, hid here, discovered and stolen by the natives."
>
> On October 29, 1826, a scout, Thomas McKay, sent ahead of the Ogden party, reported the discovery of "a country of rivers and lakes, one of the latter the water is salt."
>
> The entry in the journal on Tuesday, November 1, 1826, is, "At sunset we reached the lakes. A small ridge of land an acre in width divides the fresh water from the salt lakes. The two lakes have no intercourse. The fresh water has an unpleasant taste, one mile wide, nine long. In this lake (Malheur) discharges Sylvailles (Silvies) River and two small forks; but it has no discharge. Salt Lake (Harney) at its south end is 3 miles wide. Its length at present unknown to us but appears to be a large body of saltish water. All hands gave it a trial but none could drink it."
>
> On July 7, 1859, Captain H. D. Wallen, of the Fourth Infantry, in charge of a military expedition from The Dalles to Great Salt Lake, reached a body of water which he described as measuring about twenty by nine miles, unfit to drink. He

applied the name Lake Harney in compliment to then Brigadier General W. S. Harney. At that time, the present Harney Lake was called Tonowama by the Indians, which means "Bitter." At this time, Captain Wallen describes an incident where his stock would not drink the water of Harney Lake and stampeded over the dike eastward to what is now Malheur Lake. The latter lake was given the name of Lake Stampede by Wallen, but the name did not prevail.

While no water from Malheur Lake reaches Malheur River, the name later was given to the lake but there appears to be no particular date of record when this name was applied nor by whom.

In 1908, President Theodore Rossevelt dedicated the area as a bird refuge, which was the beginning of the now Malheur National Wildlife Refuge consisting of Malheur and Harney lakes, Double-O, and Donner und Blitzen Valley.

B. Photographs.

C. Composition Credits.

J. C. Scharff: Sections I A & I B 1; III A & B; IV; VI A, B, 1st 15 and last 2 paragraphs C; and VII.

David B. Marshall: Sections I B 2; II; III C; V; paragraphs 16 through 28 VI C; photographs and captions; and all NR Forms.

D. Signature.

May 25, 1960
Report Completed

Approved Regional Office

J. C. Scharff - Refuge Manager

SANDHILL CRANES SCRAPPING AND FEEDING ON MEADOW NEAR BUENA VISTA. Kodacolor enlargement from 35mm High Speed Ektachrome transparency number 60-10-21 taken April 12, 1960

SANDHILL CRANES ON MEADOW NEAR BUENA VISTA. THIS AND PREVIOUS PHOTO TAKEN FROM BLIND WITH 400mm LENS AND MUCH PATIENCE. Kodacolor enlargement from 35mm High Speed Ektachrome transparency number 60-10-14 taken April 12, 1960.

PAIR OF CANADA GEESE. TAKEN FROM SAME BLIND AS THE CRANE PICTURES SHOWN ON PRECEDING PAGES. Kodacolor enlargement from 35mm Kodachrome transparency number 60-11-27 taken April 12, 1960.

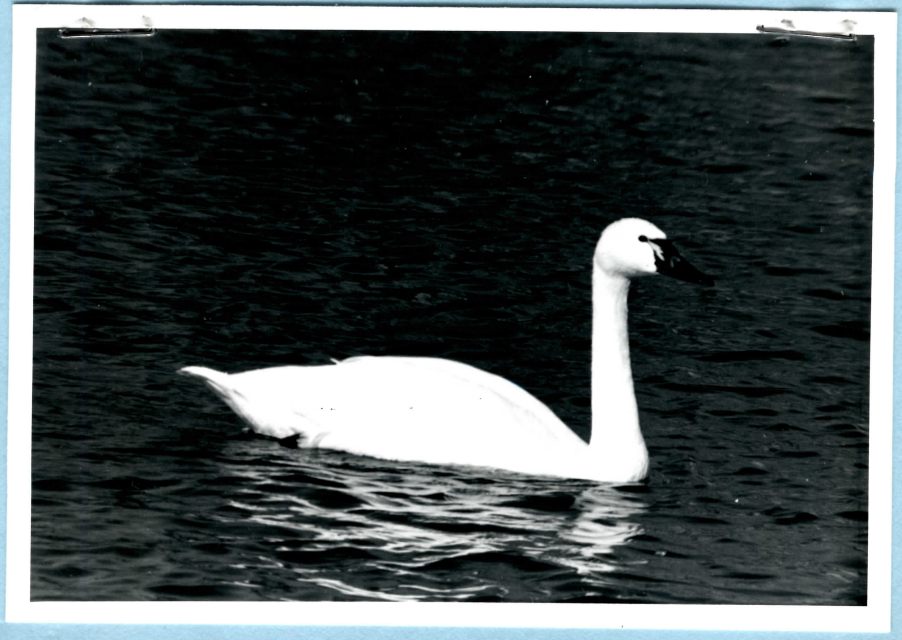
PAIR OF CANADA GEESE ON WATERS OF SOD HOUSE SPRING. Enlarged from 35mm Plus X negative number 60-2BW-15 taken in March, 1960.

WHISTLING SWANS FROM CENSUS AIRCRAFT ON EAST SIDE OF MALHEUR LAKE DURING SPRING THAW. SWANS IN FOREGROUND ARE STANDING ON ICE WHICH HAS NOT YET FULLY BROKEN UP. SNOW STILL REMAINS IN MARSH IN BACKGROUND. Kodacolor enlargement from 35mm High Speed Ektachrome transparency number 60-3-11 taken March 10, 1960.

TWO SNOW GEESE ON WATERS OF SOD HOUSE SPRING. Enlarged from 35mm Plus X Pan negative number 60-1BW-24 taken in February, 1960.

IMMATURE (top) AND ADULT (below) SNOW GEESE. Reproduced from 35mm High Speed Ektachrome transparency number 59-79-13 taken October 31, 1959.

ADULT SNOW GOOSE (left) AND ROSS' GOOSE (right). THE SHORTER NECK, SHORTER AND MORE ROUNDED HEAD AND STUBBIER BILL OF THE ROSS' GOOSE COMPARED TO THE SNOW GOOSE SHOW IN THIS PHOTO. Reproduced from 35mm Kodachrome transparency number 59-68-23 taken October 2, 1959



ADULT WHISTLING SWAN. Enlarged from 35mm Plus X Pan negative number 60-1BW-35 taken in February, 1960.

ADULT MALE AMERICAN WIDGEON. Enlarged from 35mm Plus X Pan negative number 60-1BW-11 taken in January of 1960.

PAIR OF REDHEADS. Enlarged from 35mm Plus X Pan negative number 60-2BW-10 taken in March, 1960.

BUCK AND DOE MULE DEER NEAR BUENA VISTA. Reproduced from 35mm Kodachrome transparency number 59-85-19 taken Nov. 18, 1959.

TWO MULE DEER DOES NEAR BUENA VISTA. Enlarged from 35mm Plus X Pan negative number 60-2BW-20 taken March 23, 1960.

CANADA GEESE ON POND ON THE DOUBLE-O AREA. Reproduced from 35mm High Speed Ektachrome transparency number 59-77-13 taken October 30, 1959.

SNOW GEESE ON NORTH SHORE OF MALHEUR LAKE. Reproduced from 35mm High Speed Ektachrome transparency number 59-76-9 taken October 23, 1959.

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Malheur National Wildlife MONTHS OF January TO April, 19 60

(1) Species	(2) Weeks of reporting period: 1/3-9 (1)	1/10-16 (2)	1/17-23 (3)	1/24-30 (4)	1/31-2/6 (5)	2/7-13 (6)	2/14-20 (7)	2/21-27 (8)	2/28-3/5 (9)	3/6-12 (10)
Swans:										
Whistling	23	16		17				80	140	3,600
Trumpeter	20	21		21				21	21	21
Geese:										
Canada	300	300		300				1,400	3,000	3,400
Cackling										
Brant										
White-fronted								21	70	350
Snow								60	200	28,000
Blue										
Other Total Geese	300	300		300				1,481	3,270	31,750
Ducks:										
Mallard	3,000	2,600		1,600				3,000	5,000	9,000
Black Eu. Widgeon				1					1	
Gadwall	100	100		100				100	100	200
Baldpate	150	110		250				200	300	1,700
Pintail	60	60		80				300	4,300	110,000
Green-winged teal	10	25		20				60	160	4,000
Blue-winged teal										
Cinnamon teal										
Shoveler										100
Wood										
Redhead	10	5		20				40	50	100
Ring-necked	5	2		10				15	10	25
Canvasback	2	1						1	10	50
Scaup	300	200		200				250	300	350
Goldeneye	70	70		70				70	150	150
Bufflehead	10	25		30				30	60	80
Ruddy	30	100		90				100	100	5
Other Hooded Merganser	2	10		10						
Common Merganser	100	25		5				80	10	25
Total Ducks	3,849	3,333		2,486				4,246	10,551	125,785
Coot:	200	160		170				350	400	13,000

Int. Dup. Sec.,
Wash., D. C. 37844

3 -1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Malheur National Wildlife MONTHS OF January TO April, 1960

(1) Species	(2) Weeks of reporting period: 3/13-19 (11)	3/20-26 (12)	3/27-4/2 (13)	4/3-9 (14)	4/10-16 (15)	4/17-23 (16)	4/24-30 (17)	(18)	(3) Estimated waterfowl days use	(4) Production: Broods seen	(4) Production: Estimated total
Swans:											
Whistling		900		60		50			61,061		
Trumpeter		25		25		25			2,660		
Geese:											
Canada		6,000		3,400		3,800			259,700		
Cackling											
Brant											
White-fronted		300		150		50			11,487		
Snow		20,000		4,000		500			624,820		
Blue	2								14		
~~Other~~ Total Geese	2	26,300		7,550		4,350			896,021		
Ducks:											
Mallard		7,000		8,500		14,000			707,700		
~~Black~~ Eu. Widgeon									35		
Gadwall		3,400		1,700		2,000			96,600		
Baldpate		10,000		2,500		2,000			187,390		
Pintail		5,000		2,400		2,000			1,689,100		
Green-winged teal		20,000		3,000		1,000			275,520		
Blue-winged teal		~~500~~		~~600~~		~~5,000~~			~~86,800~~		
Cinnamon teal		600		600		5,000			86,800		
Shoveler		26,000		22,000		8,000			757,400		
Wood											3,809,545
Redhead		500		300		2,000			40,530		
Ring-necked									868		
Canvasback		2,600		1,300		500			53,305		
Scaup		500		8,100		3,000			234,850		
Goldeneye		200		300		50			15,470		
Bufflehead		200		300		100			12,110		
Ruddy		1,600		30,000		1,000			660,800		
~~Other~~ Hooded Merganser									434		
Common Merganser		300		60		70			6,510		
Total Ducks		77,900		81,060		40,720			4,825,422		4,024,877
Coot:		46,000		134,000		20,000			3,611,650		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	63,700	3,600	
Geese	896,000	35,000	
Ducks	4,826,000	126,000	
Coots	3,611,600	134,000	

SUMMARY

Principal feeding areas

Principal nesting areas

Reported by David B. Marshall

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C. 37944
1953

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Malheur National Wildlife Months of January to April 19~~5~~60

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Horned Grebe	3	4/30	10	4/30						10
Eared Grebe	20	4/19	15,000	4/30						15,000
Western Grebe	4	3/25	300	4/30						300
Pied-billed Grebe			1,000	4/30						1,000
White Pelican	60	3/25	1,000	4/30						1,000
Double-crested Cormorant			200	4/30						200
Great Blue Heron			1,000	4/30						1,000
Common Egret			500	4/30						500
Snowy Egret			10	4/30						10
Black-crowned Night Heron			500	4/30						500
American Bittern			300	4/30						300
Sandhill Crane			2,000	4/1						2,000
II. Shorebirds, Gulls and Terns:										
Killdeer			8,000	4/30						15,000
Common Snipe			500	4/30						1,000
Long-billed Curlew	1	3/22	300	4/30						300
Willet	1	4/17	500	4/30						500
Greater Yellowlegs	1	4/2	50	4/30						50
Least Sandpiper	10	4/21	200	4/30						500
Dowitcher	50	4/30	500	4/30						1,000
American Avocet			3,000	4/15						5,000
Black-necked Stilt			10	4/30						10
California Gull			2,000	4/30						2,000
Ring-billed Gull			1,000	4/30						1,000
Forster's Tern			50	4/30						50

(over)

(1)	(2)		(3)		(4)	(5)	(6)
III. Doves and Pigeons:							
Mourning dove	1	4/21	500	4/30			500
White-winged dove							
IV. Predaceous Birds:							
Golden eagle			15	4/30			15
Duck hawk							
Horned owl			250	1/1			250
Magpie			2,000	1/1			2,000
Raven			300	4/30			500
Crow			50	4/30			100
Red-tailed Hawk			10	4/30			20
Swainson's Hawk			30	4/30			50
Rough-legged Hawk			50	2/1			200
Marsh Hawk			800	4/30			1,000
Sparrow Hawk			50	4/30			100
Bald eagle			25	4/1			50

Reported by David B. Marshall

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INT.-DUP. SEC., WASH., D.C.

M17058

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Malheur National Wildlife Months of January to April, 19 60

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
California Quail									2,000	
Ring-necked Pheasant									2,500	
Chukar									50	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

Form NR-4

SMALL MAMMALS

Refuge Malheur National Wildlife April 30, 19~~4~~60

(1) Species	(2) Density		(3) Removals					(4) Disposition of Fur							(5)
								Share Trapping							
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control	For Re-stocking	For Research	Permit Number	Trappers' Share	Refuge Share	Total Refuge Furs Shipped	Refuge Income	Furs Donated	Furs Destroyed	Total Popula-tion
Muskrat															1,000
Mink															
Beaver															10
Coyote					100										
Bobcat					10										
Raccoon					5										
Badger					5										

REMARKS: Predator control data only an estimage.

1615

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i.e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan. "List of North American Recent Mammals" by G. S. Miller, Jr., a very good reference, is now out of print, although a revision is scheduled for publication in the near future.)

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.) Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year. Also show any removals not falling under heading listed.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market and the total income to the refuge by species, including share-trapped furs and furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.